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EX PARTE OR LATE FILED

USWEST

Glenn Brown  
Executive Director-  
Public Policy

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MAR - 3 1998

March 3, 1998

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Ms. Magalie Roman Salas, Secretary  
Federal Communications Commission  
1919 M Street N.W., Room 222  
Washington, D.C. 20554

RE: CC Docket 96-45 and 97-160

Dear Ms. Salas:

On March 2, 1998, Whit Jordan of BellSouth, Mark Askins, and Pete Swyenki of Sprint, Jim Stegeman of INDETEC and Glenn Brown of U S WEST, met with Bryan Clopton, Lisa Gelb, Chuck Keller, Katie King, Bob Loube, Bill Sharkey, Richard Smith, Donald Stockdale Natalie Wales, and Brad Wimmer of the FCC Staff to discuss the Benchmark Cost Proxy Model (BCPM). The attached charts were used during the presentation.

In accordance with Commission Rule 1.1206(a)(2), the original and four copies of this summary of the presentation is being filed with your office. Due to the fact that the meeting concluded in the late afternoon, this submission is being filed on the next business day following the meeting. Acknowledgment and date of receipt are requested. A copy of this submission is provided for this purpose. Please contact me if you have questions.

Sincerely,



Attachment

cc: Bryan Clopton  
Lisa Gelb  
Chuck Keller  
Katie King  
Bob Loube  
Bill Sharkey  
Richard Smith  
Donald Stockdale  
Natalie Wales  
Brad Wimmer

# Review of FCC Common Results

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## **Making Sense of the HAI5.0a and BCPM FCC3.0 Results**

Presented by the BCPM Sponsors:

BellSouth

Sprint

USWest

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# Building a Network

<b>Key Factors in Building a Telecommunications Network</b>	<b>HAI</b>	<b>BCPM</b>	<b>HAI or BCPM Superior</b>
<b>Residential Customer Locations</b>	Geocoding and CB data on Perimeter Determines Clusters. Discarded in engineering	CB data Apportioned to Roads (Geocoding Override is being Developed. Override only when quality is acceptable).	BCPM <ul style="list-style-type: none"> <li>- BCPM can use Geocoding. Road Apportionment is Superior.</li> <li>- HAI Customer data is Proprietary</li> </ul>
<b>Business Locations</b>	PNR data is at CB, CBG and Census Tract level. Apportionment of CBG and CT appears Lumpy. Unsure of Geocoding process.	PNR data is at CB, CBG, and CT. Apportionment uses CBs within CBG or CT. If no CB detail exists, housing information is used. Follows same rules as housing information to determine location	BCPM <ul style="list-style-type: none"> <li>- HAI has Undocumented approach</li> </ul>
<b>Road Network</b>	Not Used	Used to Determine Location of Customers. Used as a limiting factor to the amount of Distribution plant that is built.	BCPM <ul style="list-style-type: none"> <li>- Most Plant follows roads</li> </ul>
<b>Engineering Area</b>	Cluster and Outlying Clusters. Geocoding is Discarded. Equal Distribution within Cluster	Grids and Quadrants. Quadrant retains information for Distribution Network. 4 to 5 times the accuracy of HAI Clusters.	BCPM <ul style="list-style-type: none"> <li>- BCPM has much Finer level of collection</li> </ul>
<b>Ability to true up to Actual CLLI information</b> <ul style="list-style-type: none"> <li>- Line Counts</li> <li>- Switch Investments</li> </ul>	No	Can enter wire center line counts or switch investments. The model will build to these levels.	BCPM <ul style="list-style-type: none"> <li>- BCPM is more flexible</li> </ul>

# Why is Road Information Important

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- Rights of way typically follow roads.
- Customers reside along roads
  - Correlations have demonstrated this
- Knowing the number of customers only tells part of the story
  - Customer counts determine cable sizes
  - Road information determines cable routing

# Would You Rather Know

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- HAI: 200 customers in a 6 sq. Mile area
- BCPM: 200 customers in a 6 sq. Mile area
  - AND 50 customers in upper left quadrant on 3 miles of road
  - AND 20 customer in upper right quadrant on 2 miles of road
  - AND 100 customers in lower left quadrant on 2 miles of road
  - AND 0 customers in lower right quadrant

# Level of Customer Data

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## ■ HAI

- Clusters are passed into the model
  - Area, lines, angles, etc.
    - No customer location
    - Model divides cluster area by locations to determine how to build the distribution plant
  - Cluster is the engineering area

## ■ BCPM

- Data is collected at microgrid
  - Rolled up into quadrants within a grid
  - Quadrants contain lines and roads specific to that quadrant
    - Quadrant is the engineering area

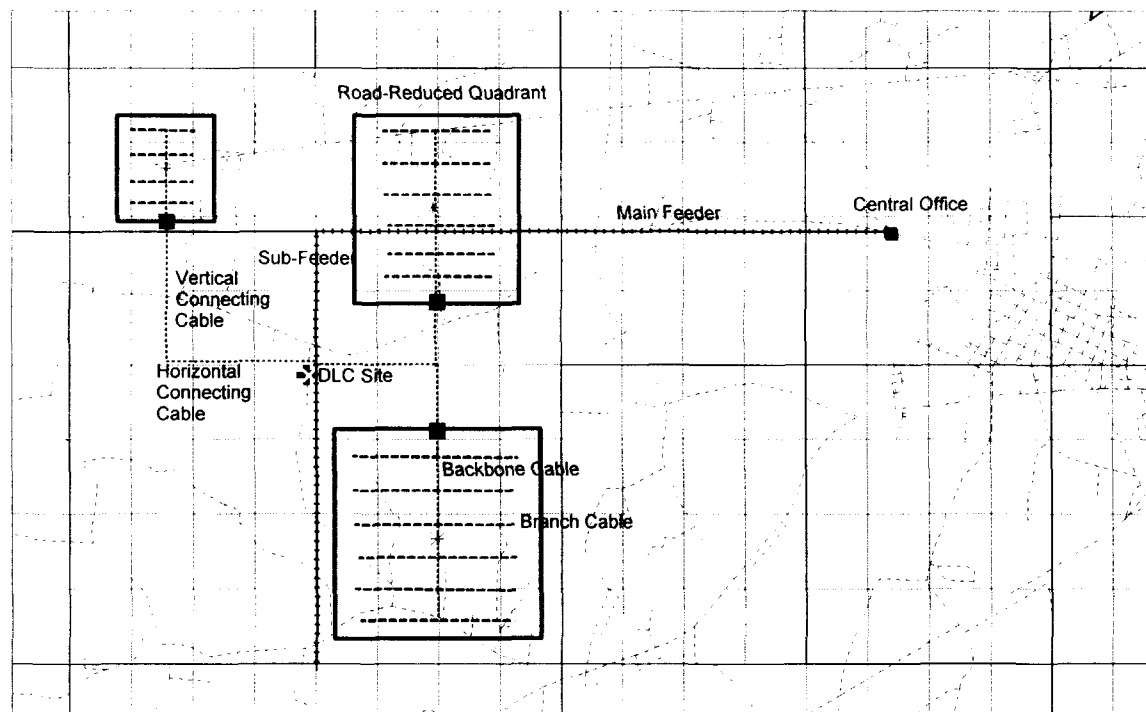
# Level of Customer Data

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- Review of BCPM Quadrants within Grids
  - Quadrants exist within each grid
    - Unequal in size, determined by road centroid of grid
    - Data in microgrids are summarized within the quadrant each microgrid resides in
  - Within each quadrant
    - Road length, customer count, and lot information is maintained
    - Road reduced clusters are centered on the Road centroid
    - Customers are assumed to be equally dispersed within road reduced area
    - Length of cables are limited to the length of the road network
    - Cable sizes are based upon the number of lines required

# Level of Customer Data

## ■ Review of BCPM Quadrants within Grids





# Level of Customer Data

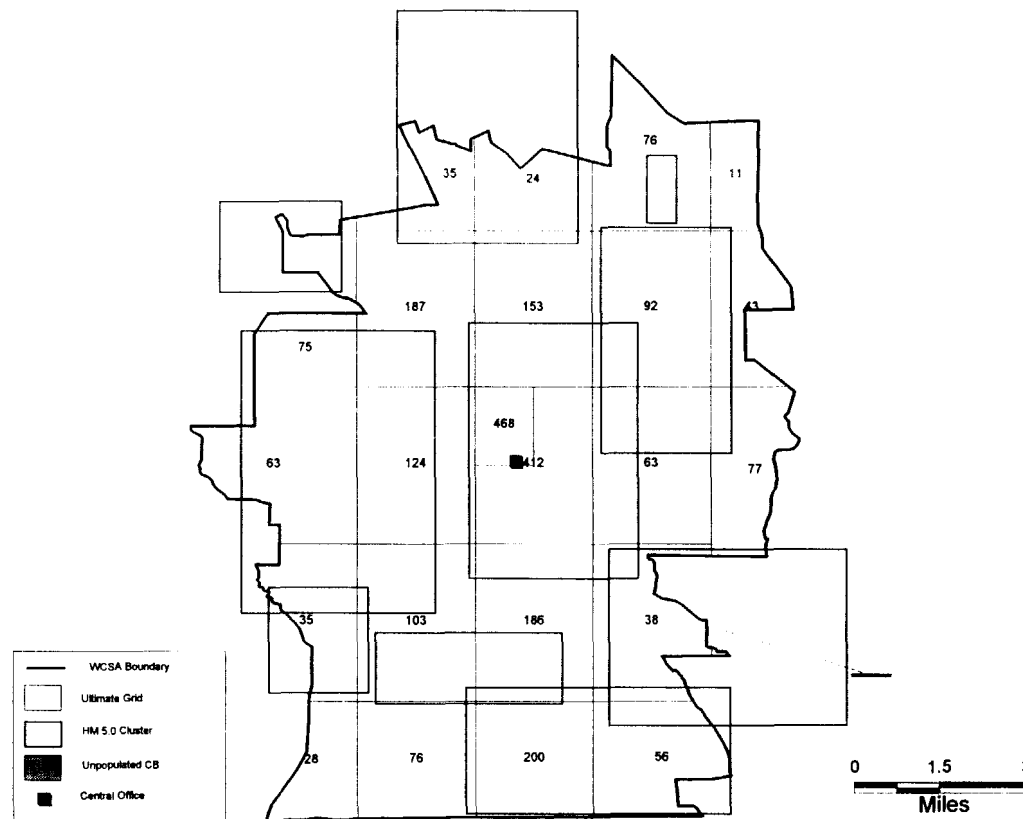
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## ■ HAI clusters

- Determined as the rectangle that encases the polygon formed by the PNR geocoding and clustering Process
- Contains lines, lots, area, aspect ratio of rectangle, etc..
- No specific customer location within cluster
  - Customers are assumed to be equally dispersed within cluster

# Level of Customer Data

## ■ Comparison of Grids and Clusters - Waterford, PA



# Analysis of Common Results

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- As demonstrated in 2/20/98 ExParte
  - BCPM and HAI produce similar numbers at
    - National level
  - BCPM and HAI diverge at operating area
    - HAI funding is typically higher in east coast/dense states
    - BCPM funding is typically higher in western/less dense states
- Upon further investigation
  - BCPM and HAI divergence is accentuated at the wire center level

# Analysis of Common Results

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- HAI shift of subsidy to dense areas is questionable
- HAI density values are questionable
- HAI appears to overbuild dense areas
- HAI appears to underbuild rural areas
- HAI business data is lumpy
- HAI special access line count is questionable
- HAI clusters do not represent wire center territory
- HAI customer location approach is inferior

# HAI Shift of Subsidy to Dense Areas is Questionable

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- We investigated the following areas
  - Anchorage Tel
  - C&P of Maryland
  - USWest of North Dakota
- These were selected since they represent the extremes in the operating company based subsidy comparisons
- Ratio of HAI to BCPM results
  - Anchorage Tel: 828%
  - C&P of MD: 199%
  - USWest ND: 55%

# Anchorage Detail

## BCPM

Alaska						
ANCHORAGE TEL UTILITY						
View: Processing - BCPMFCCRun : Capcost - BCPMFCCRun						

## HAI

Alaska Anchorage Tel Util		Total annual support for specified line types
cli	Avg monthly cost per line	
ANCRAXXC	\$ 21.41	\$ 0
ANCRAXE	\$ 22.58	\$ 0
ANCRAXN	\$ 20.04	\$ 0
ANCRAXR	\$ 26.25	\$ 0
ELMNAKXA	\$ 32.00	\$ 28,102
FTRCAKXA	\$ 27.34	\$ 0
GRWDAKXA	\$ 306.81	\$ 2,552,448
INDNAKXA	\$ 117.97	\$ 301,474

# HAI Density Values are Questionable

## ■ Review of HAI cluster data for GRWDAKXA

Actual HAI5.0a Cluster Data for GRWDAKXA					Calculated Values	
wire center	company	area, sq mi	density, lines/sq mi	tot lines	Line Count is a "Factor"	Density of Cluster
GRWDAKXA	ANCHORAGE TEL UTIL	6.836516	4.321559	32.0006		4.68
GRWDAKXA	ANCHORAGE TEL UTIL	2.496869	5882.49	10.3398	9*1.14882	4.14
GRWDAKXA	ANCHORAGE TEL UTIL	8.00039	5882.49	14.9351	13*1.14882	1.87
GRWDAKXA	ANCHORAGE TEL UTIL	4.857922	5882.49	11.4886	10*1.14882	2.36
GRWDAKXA	ANCHORAGE TEL UTIL	5.998358	27.09268	657.909		109.68
GRWDAKXA	ANCHORAGE TEL UTIL	3.210381	5882.49	11.4886	10*1.14882	3.58
GRWDAKXA	ANCHORAGE TEL UTIL	0.784714	5882.49	6.8931	6*1.14882	8.78
GRWDAKXA	ANCHORAGE TEL UTIL	0.18823	5882.49	8.04202	7*1.14882	42.72
GRWDAKXA	ANCHORAGE TEL UTIL	2.239685	5882.49	10.3398	9*1.14882	4.62
GRWDAKXA	ANCHORAGE TEL UTIL	8.137731	5882.49	11.4886	10*1.14882	1.41
GRWDAKXA	ANCHORAGE TEL UTIL	0.000358701	5882.49	1.14882	1*1.14882	
	TOTAL	42.75		776		18.15

# Importance of HAI Density

- Density values in HAI are based upon ????
- Not related to engineering area (cluster)
- Density is critical in a model that relies on density driven table lookups
- All facets of the plant are driven by density.
- For example, in the feeder

fiber feeder						
aerial fraction	buried fraction	underground fraction	manhole spacing, ft	buried installation/foot	conduit installation/foot	density range, lines/sq mi
0.35	0.60	0.05	2000	\$1.77	\$10.29	0
0.35	0.60	0.05	2000	\$1.77	\$10.29	100
0.30	0.60	0.10	2000	\$1.93	\$11.35	200
0.30	0.30	0.40	2000	\$2.17	\$11.88	650
0.20	0.20	0.60	2000	\$3.54	\$16.40	850
0.15	0.10	0.75	2000	\$4.27	\$21.60	2550
0.05	0.05	0.90	2000	\$45.00	\$75.00	10000



# Importance of HAI Density

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- Based upon the GRWDAKXA density
  - HAI builds \$24M of feeder plant
- If we change the GRWDAKXA density to the CLLI density of 18.15
  - The model would build \$2.5M of feeder plant

# C&P and USWest Detail

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- Attached are the detailed wire center listings
- HAI distribution design and lack of road data
  - Leads to overbuilding of C&P MD distribution areas
  - Leads to underbuilding of USWest ND distribution areas
- Unexpected difference in business data

# Importance of Road Length Data

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## ■ Consider the following example of HAI distribution design

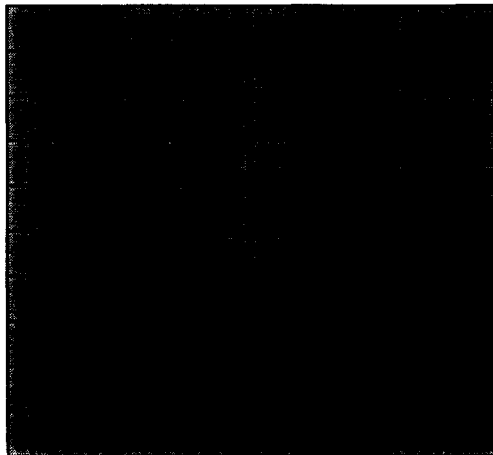
Actual Data:

Cluster A:

200 Lots, 10,000ft square

5 Miles of Road

Visual of HAI Engineering



Lots:

500\*1000

10,000ft

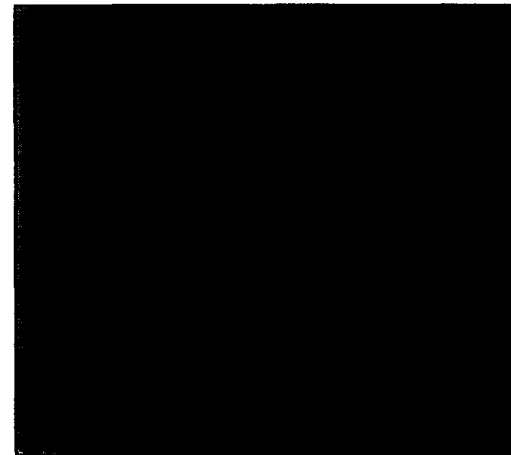
Actual Data

Cluster B:

32 Lots, 10,000ft square

5 Miles of Road

Visual of HAI Engineering



Lots:

1250\*2500

10,000ft

# Importance of Road Length Data

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- In cluster A the HAI will install
  - 5 branches at 9000ft = 45,000ft
  - 1 backbone at 8000ft = 8,000ft
  - Total of 53,000 route feet or 10 miles
- In cluster B the HAI will install
  - 2 branches at 7500ft = 15,000ft
  - 1 backbone at 5000ft = 5,000ft
  - Total of 20,000 route feet or 3.8 miles
- Summary
  - Dense areas overbuilt
  - Sparse areas underbuilt

# Importance of Road Length Data

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- BCPM solution to hypothetical network build
  - Uses roads to determine
    - Location of customers within quadrant of grid
    - Area of quadrant to build to
  - Uses roads to avoid
    - Overbuilding in higher density areas
    - Overbuilding in areas with limited roads

# HAI Overbuilds Dense Areas

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## ■ For C&P Maryland

- HAI builds 33,236 miles of distribution plant
- BCPM builds 30,222 miles of distribution plant
- Based on TIGER, there are 35,515 miles of road
- Based upon BCPM analysis, there are 35,424 miles of “populated” roads
  - Of this, HAI is 94% and BCPM is 85%
- At the wire center
  - HAI ranges from 46% of BCPM road miles to 299%
  - BCPM ranges from 32% to 99%

# HAI Underbuilds Rural Areas

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- For USWest North Dakota
  - HAI builds 5,311 miles of distribution plant
  - BCPM builds 8,256 miles of distribution plant
  - Based on TIGER, there are 14,182 miles of road
  - Based upon BCPM analysis, there are 12,343 miles of “populated” roads
    - Of this, HAI is 43% and BCPM is 67%
  - At the wire center
    - HAI ranges from 22% of BCPM road miles to 109%
    - BCPM ranges from 14% to 127%

# HAI Clusters do Not Represent Wire Center Area

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## ■ For C&P Maryland

- Sum of HAI cluster areas exceed the actual area in 30% of the wire centers
  - In total HAI clusters cover 90% of the wire center area

## ■ For USWest North Dakota

- HAI cluster areas exceed the actual area in 0% of the wire centers
  - In total HAI clusters cover 47.9% of the wire center area



# HAI Business Data is Lumpier

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- PNR business data is received at CB, CBG and census tract level
  - Both models apportion the data to either grids or clusters
- We are unsure what the HAI process of apportioning CBG or CT data.
- In fact, we are unsure how HAI locates business CB data.